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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,201

10/11/2006

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441P103

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EXAMINER

HON, SOW FUN

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,201	Applicant(s) IMALZUMI ET AL.	
	Examiner SOPHIE HON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05/01/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 11, 13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/10/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-10,12, is drawn to a sealing material.

Group II, claim(s) 11, 13-14, is drawn to a method containing the sealing material.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The technical feature that is common to both inventions, namely the sealing material, is anticipated by JP 2004-061925. Therefore, since the claims fail to define a contribution over JP 2004-061925, they fail to constitute a special technical feature and hence there is a lack of unity between the cited claims.

3. During a telephone conversation with Kevin Lemack on May 1st, 2008 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-10, 12. Affirmation of this election was made by Applicant in the preliminary amendment filed May 1st, 2008, where claims 11, 13-14 are labeled as withdrawn.

Claims 11, 13-14 are thus withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 5-7, 10, 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Asano (JPO Website Machine English Translation of JP 2004-061925), as evidenced by Wikipedia (Ball Mill).

Regarding claims 1-3, Asano teaches a sealing material for liquid crystals produced by homogeneously dispersing (mixing uniformly, Detailed Description, [0037]) fine particles (D) having an average particle size of not more than 3 μm (essential component (e) filler, abstract) in a reactive resin (C) having an epoxy group and (meth)acryloyl group (acrylic or methacrylic acid, Detailed Description, [0014], dissolution mixing of the epoxy resin of many organic functions, Detailed Description, [0037]) using a ball mill (Detailed Description, [0037]) which is a wet dispersion unit (A) in which a dispersion vessel (a) contains media (b) as dispersing media and a rapidly

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rotating stirrer (c) disperses agglomerated particles by allowing the media to collide with each other in a high-speed rotating field, as defined in Applicant's specification (commercially available generically termed ball mill, page 5, 2nd paragraph), as further evidenced by Wikipedia.

Wikipedia teaches that a ball mill is a dispersion unit (A) in which a dispersion vessel (a) contains media (b) as dispersing media (ceramic balls and stainless steel balls, page 2) and a rapidly rotating stirrer (c) disperses agglomerated particles by allowing the media to collide with each other in a high-speed rotating field (rotate around a horizontal axis, page 2, high-energy ball milling, page 1).

Even though product by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See MPEP 2113. In the instant case, while Asano fails to disclose that the dispersion unit (A) is of a continuous processing system, is silent regarding the type of dispersing media (b), and fails to teach the combination of process steps whereby solvent (B) is added to the dispersion unit (A) and then removed after the dispersion, these are process limitations which yield a sealing material end-product that has the same composition.

Regarding claims 5-6, Asano teaches that the fine particles (D) are inorganic fine particles (D-1) made of silica, and/or alumina (bulking agents (e) may mix two or more sorts, Detailed Description, [0030]).

Regarding claim 7, Asano teaches that the fine particles (D) are organic fine particles (D-2) (organic filler, [0037], (e) filler having $\leq 3\mu\text{m}$ average particle size, abstract).

Regarding claim 10, Asano teaches that the sealing material for liquid crystals further contains additives such as a curing agent (Detailed Description, [0024]), a curing promoter (hardening accelerator, Detailed Description, [0026]), a photopolymerization initiator (essential component (b), abstract) and a coupling agent ([0030]). While Asano fails to teach the combination of process steps whereby the solvent (B) is added and then removed and then adding the one or more of said additives, given that Asano discloses the sealing material as presently claimed that uses additives as presently claimed, these presently claimed process steps yield a sealing material end-product that has the same composition as that of Asano.

Regarding claim 12, Asano teaches a liquid crystal display cell sealed with a cured product of the sealing material for liquid crystals (Detailed Description, [0038]).

7. Claims 1-7, 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Sumita (US2002/0089071A1), as evidenced by Wikipedia (Ball Mill).

Regarding claims 1-3, Sumita teaches a sealing material ([0012]) produced by homogeneously dispersing fine particles (D) having an average particle size of not more

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than 3 μm (from 1 to 3 μm , [0041], 0.1 to 1.0 μm , [0046]) in a reactive resin (C) having an epoxy group (epoxy resin, [0044]) using a ball mill ([0057]) which is a wet dispersion unit (A) in which a dispersion vessel (a) contains media (b) as dispersing media and a rapidly rotating stirrer (c) disperses agglomerated particles by allowing the media to collide with each other in a high-speed rotating field, as defined in Applicant's specification (commercially available generically termed ball mill, page 5, 2nd paragraph), as further evidenced by Wikipedia.

Wikipedia teaches that a ball mill is a dispersion unit (A) in which a dispersion vessel (a) contains media (b) as dispersing media (ceramic balls and stainless steel balls, page 2) and a rapidly rotating stirrer (c) disperses agglomerated particles by allowing the media to collide with each other in a high-speed rotating field (rotate around a horizontal axis, page 2, high-energy ball milling, page 1).

Even though product by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See MPEP 2113. In the instant case, while Sumita fails to disclose that the dispersion unit (A) is of a continuous processing system, is silent regarding the type of dispersing media (b), and fails to teach the combination of process steps whereby solvent (B) is added to the dispersion unit (A) and then removed after the dispersion, these are

process limitations which yield a sealing material end-product that has the same composition.

Furthermore, the term “for liquid crystals” is a recitation of the intended use of the claimed invention, which must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art composition is capable of performing the intended use, then it meets the claim.

Regarding claim 4, Sumita teaches that the fine particles (D) can have an average particle size of 0.3 μm ([0046]).

Regarding claims 5-6, Sumita teaches that the fine particles (D) can be inorganic fine particles (D-1) made of silica or alumina ([0038]).

Regarding claim 7, Sumita teaches that the fine particles (D) can be organic fine particles (D-2) (rubbery polymer, [0044]).

Regarding claim 10, Sumita teaches that the sealing material can further contain additives such as a curing agent ([0018]), a curing promoter (accelerator, [0056], coupling agent ([0042]), an ion scavenger, and an antioxidant (ion trapping agent, [0056]). While Sumita fails to teach the combination of process steps whereby the solvent (B) is added and then removed and then adding the one or more of said additives, given that Sumita discloses the sealing material as presently claimed that uses additives as presently claimed, these presently claimed process steps yield a sealing material end-product that has the same composition as that of Sumita.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 8-9, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sumita, as evidenced by Wikipedia, as applied to claims 1-7, 10 above, and further in view of Tahara (US 5,665,797).

Sumita teaches a sealing material produced by homogenously dispersing fine particles (D) which are organic fine particles (D-2) having an average particle size of not more than 3 μm in a reactive resin (C) having an epoxy group, as described above. In addition, Sumita teaches that the organic fine particles (D-2) are rubber fine particles that have a core-shell structure ([0044]). Sumita fails to teach that the rubber fine particles are cross-linked, or that the sealing material is used in the form of a cured product to seal a liquid crystal display cell.

However, Tahara teaches that rubber fine particles are cross-linked for the purpose of providing deformation resistance (column 5, lines 19-20) when dispersed in a reactive resin (C) having an epoxy group (epoxy resin, column 5, lines 5-10). Tahara teaches that it is common practice to use a reactive resin having an epoxy group as a sealing material in the form of a cured product for sealing a liquid crystal display cell (cell comprising liquid crystal, column 1, lines 35-40, display, column 1, lines 10-11, composition for sealing liquid crystal cells, column 2, lines 14-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have cross-linked the rubber fine particles in the sealing composition of Sumita, in order to obtain the desired deformation resistance, as taught by Tahara, and to have used the sealing composition in the form of a cured product to seal a liquid crystal display cell, in order to provide the desired seal, which is common practice, as taught by Tahara.

9. Claims 4, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano, as evidenced by Wikipedia, as applied to claims 1-3, 5-7, 10, 12 above, and further in view of Tahara (US 5,665,797).

Asano teaches a sealing material for liquid crystals produced by homogeneously dispersing fine particles (D) having an average particle size of not more than 3 μm in a reactive resin (C) having an epoxy group and a (meth)acryloyl group, as described above. In addition, Asano teaches that organic fine particles can be added (organic filler [0037]), but is silent regarding the type. Asano also fails to specify the narrower range within the disclosed average particle size range of not more than 3 μm , where the fine particles (D) have an average particle size of not more than 0.3 μm .

However, Tahara teaches that a sealing material for liquid crystals (column 1, lines 9-11) requires organic fine particles that are cross-linked rubber fine particles for the purpose of providing the desired resistance to deformation (column 5, lines 19-22), wherein the average particle size can be 0.05 μm (column 8, lines 54-55), which is within the claimed range of not more than 0.3 μm , for the purpose of providing the

desired reliable and satisfactory performance (column 6, lines 21-27) in terms of improving the bond strength and flexibility of the sealing material (resin composition, column 2, lines 34-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used cross-linked rubber fine particles with an average particles size that is within the narrower range of not more than 0.3 μm , as the organic fine particles in the sealing composition of Asano, in order to obtain the desired resistance to deformation, and the desired reliable and satisfactory performance in terms of improving the bond strength and flexibility of the sealing material, as taught by Tahara.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano in view of Tahara, as evidenced by Wikipedia, as applied to claims 4, 8 above, and further in view of Sumita (US 2002/0089071 A1).

Asano, as modified by Tahara, teaches a sealing material for liquid crystals produced by homogeneously dispersing fine particles (D) that are cross-linked rubber fine particles having an average particle size of not more than 3 μm , in a reactive resin (C) having an epoxy group and a (meth)acryloyl group, as discussed above. Asano, as modified by Tahara, fails to teach that the cross-linked rubber fine particles have a core-shell structure.

However, Sumita teaches a sealing material ([0012]) produced by homogeneously dispersing fine particles (D) having an average particle size of not more

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than 3 μm (from 1 to 3 μm , [0041], 0.1 to 1.0 μm , [0046]) in a reactive resin (C) having an epoxy group (epoxy resin, [0044]), wherein the hard shell (T_g of 80 to 150°C, [0046]) of a rubber fine particle that has a core that is rubbery ([0044]) provides less agglomeration to allow better dispersion ([0046]), while providing a better transition in modulus to the hard epoxy matrix as is well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the cross-linked rubber fine particles in the sealing composition of Asano, as modified by Tahara, with a core-shell structure, in order to obtain rubber fine particles with less agglomeration to allow better dispersion, as taught by Sumita, while providing a better transition in modulus to the hard epoxy matrix, as is well known in the art.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks, can be reached on (571)272-1401. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sophie Hon/

Sow-Fun Hon

/Callie E. Shosho/

Supervisory Patent Examiner, Art Unit 1794